

# Acceptance and Use of Simple Mobile Services - Preliminary Results and Perspectives

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## ABSTRACT

Although Web Services have made the leap from the desktop to mobile devices, mobile services are still much less widely used than their desktop equivalents. The Simple Mobile Services (SMS) project proposes a new generation of services designed to overcome the limitations of the current offering. Here we describe 4 focus groups (1 in Germany, 1 in Greece and 2 in Italy) designed to investigate the user experience with currently available services and their expectations for the future. Key findings include very low use of current services, mainly because of high cost and poor ergonomics, strong acceptance of the SMS concept, strong concerns about reliability and privacy (particularly when services use location information), concerns about the de-humanizing aspects of new services (excess reliance on machine rather than face to face communication), and a strong preference for free services (financed by advertising and/or service providers).

## Keywords

Simple Mobile Services, web services, user experience, privacy, reliability, focus groups

## INTRODUCTION

In recent years, Web Services have made the leap from the desktop onto mobile devices. Here they provide the underlying technology for a broad range of applications such as mobile payment, multimedia systems, remote maintenance and location based services. However, they are still far less widely used than their equivalents in Desktop Computing. Often they suffer from the constraints imposed by their target platforms – mobile devices with low processing power, little memory, slow and expensive internet connections, small screens and tiny keyboards. These constraints have a negative effect on usability.

Against this background, the goal of the Simple Mobile Services (SMS) project [1] is to create innovative end-user and authoring tools enabling a new class of mobile services. In the project vision, these services should be easy to find, easy to use, easy to trust and easy to set-up. Ultimately, creating and using Simple Mobile Services should be as simple as creating and using a conventional web site.

Achieving this requires an understanding of users' current experience of mobile services and of their expectations for the future. In this paper we report the results of a focus

group study (conducted in Germany, Italy, and Greece) designed to collect preliminary insights into these issues.

In the next section, we describe the way we organized the focus groups; the following sections summarize the results. Issues covered include awareness and use of current mobile services, user reactions to the SMS concept, the SMS user interface, commercial issues related to take up of mobile services and the segmentation of the potential user population. The last section draws some initial conclusions and identifies open issues for future work.

## COMPOSITION AND SETUP OF THE FOCUS GROUPS

The study used 4 focus groups: 2 in Italy, 1 in Germany and 1 in Greece:

The first focus group was organized on the university campus at Tor Vergata (Italy). The group consisted of students of telecommunications engineering with high school diplomas (10 males and 2 females; age 22 to 26; mean age=24,8). 3 of them considered themselves to be experts in the use of mobile phones, 8 considered themselves to be "average" users and only 1 limited himself to "basic functions". All except 2 participants considered themselves to be PC technicians or expert users. This percentage was much higher than in the other groups.

The second group was organized at the offices of Xiwrite in Frascati (Italy). The group consisted of high school students with middle school diplomas (5 males and 3 females; age 15 to 20; mean age=17,4). 6 of them rated themselves as average users of mobile phones; 2 said their use was restricted to basic functions. Six participants considered themselves to be average users of PCs; 2 described themselves as experts.

The third group was organized at LMU Munich (Germany). The group consisted of students of computer science (6 male and 3 female; age 22 to 30; mean age: 24,7). 8 participants had a high school diploma and 1 already had a university degree. Only 2 of them claimed to be experts in the use of mobile phones. 3 stated they were average users; 4 users said that they used only basic functions. In general mobile phone skills seemed to be lower than in the other focus groups. All except 1 user described themselves as computer technicians or experts.

The group from Athens International Airport consisted of professionals working at the airport (6 male and 5 female;

age 29 to 46; mean age 36,2), all with university degrees. The professions represented included human resources management, civil engineering, finance, journalism, technical supervision, insurance, security, and quality control. This group contained no mobile phone experts. 8 participants considered themselves to be average users; 3 restricted themselves to basic functions. The group contained only 1 expert user and 10 average users of PCs.

In the following sections we summarize the main findings from the focus groups.

### **AWARENESS AND USE OF MOBILE SERVICES**

Use of mobile phones to access the Internet was slightly more frequent in the Italian groups (all the Italians had tried to use Internet at least once) than in Germany (where half the group had not even tried) but in all cases was extremely low. Given that the technical skills of focus group participants were generally higher than those of the general population, we would expect the percentage of users in the total population to be even lower than suggested by these results.

The main reported use was to read email. Only relatively few participants (2 users in the Greek group, 1 in the Italian group of high school students) had used other Internet-based services. The services used included a cinema timetable, download of ring tones and wallpaper and a betting service. Most participants found it easier to perform downloads via their PCs and then upload the data via Bluetooth.

The failure to use mobile services was not due to lack of knowledge. Nearly all participants in the focus groups were aware of the possibility of accessing Internet via their mobile phones. For nearly all participants, the critical obstacle was the cost of traffic. The cost of the handset was generally considered less important, probably because users do not directly related it to the use of other services than voice. (or consider it already paid as they possess mobile phones.)

Other motivations for failure to use mobile services included the low number of web sites adapted for mobile use (e.g. many web sites use JavaScript which browsers on mobile phones do not support), poor performance (games are reported to be slow), difficulty in viewing sites on small screens, and difficulty in inputting data via cell phone keyboards. Nearly all participants preferred to access the web via a laptop. Very few participants possessed high end phones. As one German participant put it: "Mobile internet access is a nice gimmick but rarely used".

### **THE SMS CONCEPT**

After this initial discussion of mobile services, the leaders of the groups introduced the main ideas behind the SMS concept and showed video clips illustrating these ideas. The services shown include automatic, location-dependent service discovery (the so-called "What's here"-feature), customization of services according to user location and

profile, navigation features (the so called "Take-me to"-feature) and so called "SMS Points" – special locations where users can interact with services using low-range technologies such as Bluetooth and Near Field Communication (NFC). For instance, inside an airport a SMS point could be a terminal for quick check-in; reaching this point automatically triggers the pop-up of a number of airport related services and information.

In all the focus groups, reactions to the SMS concept were extremely positive. With only a single exception all participants would try the service if it was free of charge or provided at low cost. The Italian group of university students described it as "simple, futuristic, comfortable". The high school students saw it as bringing together applications which are currently separate. Suggestions for applications included a credit card, a navigator, and a yellow pages service. For participants in the German focus group, the key advantage of the service was that it offered services related to the user's specific location and context and that it reduced the need to manually input data. In this setting, participants thought the most attractive services were the "navigation service" and the "What's here"-feature. For professional participants in the Greek focus group the most attractive feature of the service was that it allowed users to save time and to reach useful information faster and on the go.

Participants also expressed a number of worries. The main concern, expressed by large numbers of participants in all the groups, was privacy. A number of Greek participants expressed the fear that SMS could be a form of "thought control", giving users the sensation they were continuously under control. There was particular concern about location data. Several participants expressed mistrust of the way mobile phone operators might use the data provided by SMS. A participant in the German focus group stated that he would be willing to provide anonymous data (e.g. age, sex, preferences, hobbies) but would not like to give his name. A Greek participant expressed similar ideas. There was general agreement in all the groups that users should be able to decide when and to whom they give personal information as well as the level of personal information to be published.

Another concern was that SMS would reduce human contact and increase dependency on technology. This concern was shared by a large majority in the Greek group, and a significant number of Italians. A final concern (particularly strong in the Greek focus group) was that users could be bombarded with messages they do not want to receive. Several participants stated that they only wanted to receive information when they asked for it.

Participants in the groups made a number of suggestions for the design of the service and for the way it should be managed. It is important that SMS should not depend on 3G or GPRS networks. For many participants it would be useful to access the service from Wi-Fi hot spots. Many

participants do not want telephone operators to manage purchases or payments through SMS. They would prefer these to be in the hands of businesses they trust to handle confidential data (e.g. a credit card company or a bank).

### **THE SMS USER INTERFACE**

Participants in the two Italian focus groups and in the German group thought it was important that users should be able to personalize the user interface, for instance by shifting the position, style and colors of buttons and banners. One way of achieving this would be to adopt the “themes” model currently used on mobile phones. Having one’s own theme could be seen as a “fashion statement” – a way for the user to express his/her personality.

Participants in the focus groups made several suggestions for improvement to the interaction design, e.g. through appropriate use of sound for feedback, the use of content filters for children and through 3D representations of the external environment, making it easier to use navigation services.

### **COMMERCIAL ISSUES**

As stated earlier, the huge majority of participants were willing to try SMS if it were free. However there were significant differences in willingness to pay and in the payment models considered acceptable. In general willingness to pay was highest in Italy, especially among high school students whose bills are usually met by their parents. Participants in the focus group with high school students suggested they might pay as much as 40 euros/month to receive SMS services. This figure seems intuitively very high. It is possible that many of the participants believed this figure would also cover conventional use of the telephone. Engineering students in the other Italian focus group suggested they might be willing to pay 15-20 euros/month to receive the service, but only if it already had a large number of users.

Participants in the German focus group showed a strong preference for free services. Participants in the Greek focus group also believed that at least the basic packet of services should be free. In their view, any costs should be carried by retailers and not by end-users. In the case of the Athens airport, for instance, the airport itself could provide the service for free for increasing customer satisfaction. One Greek participant clearly stated: “If I can use the service free on the Internet from my PC why pay for it when I receive it on my mobile.”

As far as concerns possible business models, the focus groups registered widely diverging opinions. Both Italian groups expressed strong interest in an advertising funded model (though participants also expressed the view that advertising should not be too intrusive). The German and Greek focus groups did not discuss this issue in depth. One German participant suggested that the presence of advertising would reduce his willingness to use the service. If there were adverts they should be of the passive variety (like banners) and not the active variety (like pop-ups).

The Italian focus group with high school students suggested that almost no student in this age group has a contract for his/her mobile phone. The preferred method of payment is through a pre-paid card. In the other Italian focus group and the German group some users preferred to pay through a flat monthly subscription, others on a pay-as-you-go basis. In general participants did not like the idea of receiving a bill from an external provider. There was concern that subscriptions might be easier to purchase than to cancel. But participants also expressed significant mistrust of telecommunications companies. One view expressed was that billing through the telecoms operator might make it too easy for third party operators to charge for non-existent services. Several participants – especially the Greek group - suggested the need for a launch period of free access.

### **SEGMENTING THE SMS USER POPULATION**

On the basis of the results of the focus groups we propose an initial segmentation of the SMS user population. The proposed segmentation is based on two variables namely: (i) acceptance of / hostility to technology and (ii) sensitivity to price. Using this distinction we identify three groups:

*Fashion makers* adopt technology – not out of love – but as a way of “keeping in” with the crowd and of affirming their personal identity. The majority are young (this group was especially strong in the focus group with high school students), use mobile phones intensely in their daily lives and have no fear of technology. Their reaction to SMS is highly positive – in fact they sometimes exaggerate the potential of the service. It is important for them that the system should be visually appealing. Many of them would like to personalize the service with “themes”. Like all participants in the focus groups they are concerned about privacy. Nonetheless they would accept SMS, regardless of the risks. In their initial reactions to the product they seem more willing to pay than other categories of user.

*Technophiles* include a large number of computer technicians and “expert users”. This is the group with the strongest understanding of SMS technology and the strongest appreciation of the system’s technical benefits. Technophiles dominated the German and Italian focus groups with university students, and were also present in the Italian group with high school students. Only one of the participants in the Greek focus group fell into this category. Compared to fashion makers and the “practical and worried” (our third category), technophiles are less sensitive to the potentially de-humanizing aspects of SMS (though they are equally concerned about issues of privacy). Price sensitivity is variable. In Germany their willingness to pay was relatively low; in Italy it was significantly higher

The *practical and worried* were represented in the focus groups by the well-educated, relatively old professionals from Athens airport. These users see SMS primarily as a

practical tool, helping them to save time in their daily lives. Interestingly they were the only group to suggest the use of SMS for free delivery of services of public interest (for example: services for health or culture). “Not technology for the benefit of commerce” as one participant stated. As far as it is possible to ascertain from the responses of the groups, members of this category have no interest in SMS as a “fashion statement”. This is also the category of user that expressed the strongest concerns about the potentially de-humanizing effects of SMS technology and the risk of technology-addiction. Members of this group are highly sensitive to price, with very little willingness to accept anything other than free services.

### **SUMMARY AND CONCLUSION**

The results of the focus groups provide interesting insights into users expectations for SMS and for mobile services in general.

On many issues all four focus groups expressed similar views: The overall evaluation of the SMS concept was highly positive. Participants in the different focus groups agreed that SMS was useful and easy to use.

All the groups expressed concern about the privacy implications of the service. These concerns were particularly severe with respect to location-related information. There was a strong consensus that users should be able to control what information they made available to operators, service providers and other users.

A large number of users were concerned by the risk of over-dependency on the service and associated issues of reliability. Many users asked what would a user do if their battery ran out, or if they lost their mobile phone, or in areas with no coverage.

A key difference between the groups concerned the implications of SMS for human interaction. Particularly in Greece but also in the two Italian groups, many participants were concerned that SMS would encourage users to communicate by machine rather than face to face. This was seen as a negative development. The German group did not express these concerns.

A second difference concerned the motivation for using SMS. The professionals in the Greek group focused on practical issues such as time saving and easier access to information. The other groups were less precise in discussing their motivations.

But the largest difference concerned sensitivity to price. Participants in the two Italian groups were both prepared to pay a significant price for access to SMS services. This willingness was particularly strong among the very young people in the high school students group. By contrast participants in the German and Greek groups seemed reluctant to pay for the service. This reluctance was particularly strong in the Greek group.

From the description of the focus groups, it is evident that the potential users we have involved in our research are not a representative sample of the potential user population. In particular:

- Participants’ level of education was significantly higher than that of the population as a whole
- Many important social groups (manual workers, low-level office staff, shop staff, housewives) were not represented at all
- Higher age-groups were under-represented or not represented at all
- Women were under-represented
- All participants had average or above average computer skills.

These limitations imply that it is not possible to use data from the focus groups to represent the attitudes of all potential users. In future work, it would be useful to investigate the attitudes and needs of potential users who were not covered in this initial study. This does not mean however that the work performed so far is without significance. We have seen that the basic concept of SMS is accepted by a broad cross-section of users and there exists a broad willingness to try mobile services, particularly if it could be provided free of charge. We have also seen that users share a number of critical concerns particularly with regards to privacy, reliability and the cost of services. The future success of mobile services is likely to depend on the way in which providers respond to user expectations in these areas.

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### **REFERENCES**

- [1] SMS web site; [www.ist-sms.org](http://www.ist-sms.org)